

## ABSTRACT

A compact spectrometer that is relatively free of spatial and spectral image distortions. The spectrometer includes one or more slit elements located at an object plane, a first optical sub-system having at least one refractive optical element, one or more dispersive elements located substantially at a center plane, a second optical sub-system having at least one refractive optical element, and one or more one detecting elements located at substantially an image plane. The first optical sub-system is capable of substantially collimating, at the center plane, electromagnetic radiation originating from the one or more slit elements. The second optical sub-system is, in one embodiment, substantially symmetric to said first optical sub-system, the center plane being the plane of symmetry. The second optical sub-system is capable of imaging the substantially collimated electromagnetic radiation from the center plane onto the image plane. Another embodiment has a reflective dispersive element, and the first optical sub-system is also the second optical sub-system, acting as a dual optical sub-system.

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